



Navy Interoperability Workshop

NDIA

May 30, 2001

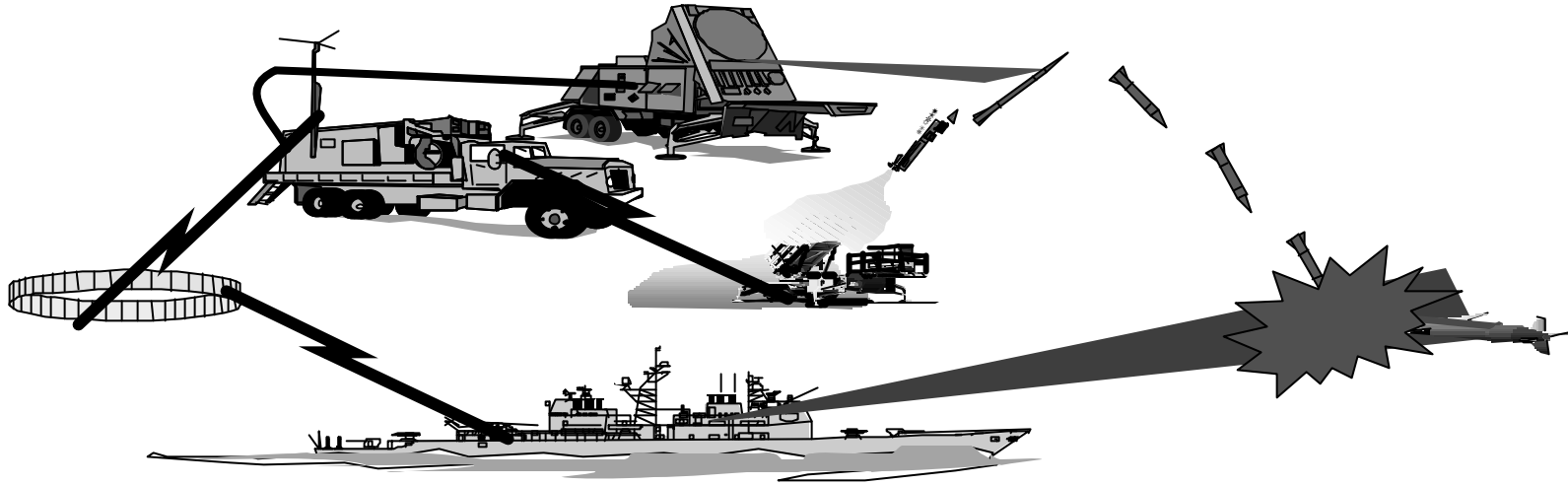
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WHAT IS INTEROPERABILITY?



“We will connect Information systems and weapons in new ways”
President George Bush
New York Times, 25 March 2001



“The ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to use the services so exchanged to enable them to operate effectively together.”

(JCS Pub 1)

Focus is on Effective Joint and Combined Operations



The Vision:

Long Standing Consensus

- **Andy Marshall's RMA**
- **Battle Space Infosphere/Network-Centric Forces**
- **DSB Joint Operations Superiority in the 21st Century, etc. . .**

Reality:

Constantly Slipping Implementation



Status



- **Policies - Basically in place**
 - JV2020, DOD 5000, CJCSI 3170/6212, etc. . .
- **Process - Evolving**
 - KPP's, IER's, DAES Reporting, C4I Support Plans, T&E Master Plan, Certification
- **Architectures - Insufficient**
 - JTA, JOA, JSA, GIG . . .
- **Systems of Systems Implementation - Inadequate**
- **FIOP - Key Initiative / Pilot - Minimal Resources**



Directorate of Interoperability Program



- **Management, Oversight, Acquisition Policy**
 - **DAES Interoperability Reviews**
 - **Defense Acquisition Board (DAB)**
 - **Systems Engineering/ Simulation-Based Acquisition (SBA)**
 - **DoD Series 5000 Rewrites**
 - **Coalition Warfare**
- **Key Interoperability Enablers**
 - **Building System-of-Systems Capability**
 - **Systems Architecture**
 - **Commercial Information Technology Outreach**
 - **CIO Executive Board**
- **Initiatives**
 - **Family of Interoperable Operational Pictures (FIOP)**
 - **Combat Identification (CID)**
 - **Time Critical Strike/Targeting**
 - **Shared Tactical Ground Picture (STGP)**
 - **Single Integrated Air Picture (SIAP)**
 - **Joint Distributed Engineering Plant (JDEP)**



Family of Interoperable Operational Pictures (FIOP) (The Problem)



No Coherent View of the Battlespace from CINC to Soldier/Sailor/Airman
Inability to Prosecute a Coordinated Strategy

USER CONCEPT

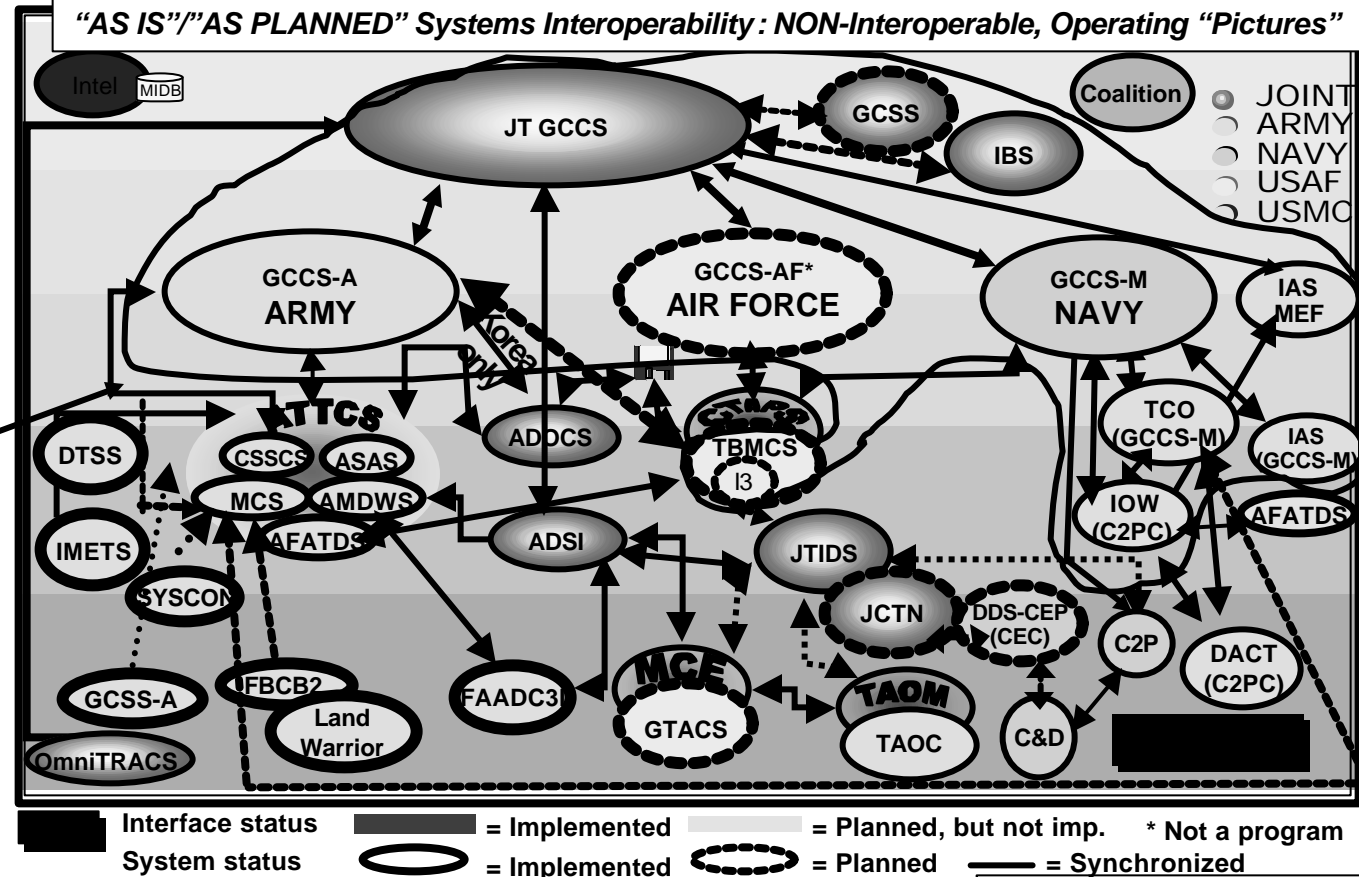
CORRESPONDING SYSTEMS: "As-Is / As Planned"

CINC Operational-level "pictures"

JTF Tactical-level "pictures"

Capability to synch these systems IF identical COE level & SW version w/ COP Synch Tools

Firing Unit Aerospace, Ground, Maritime "pictures"



- *The cause:* multiple systems, conceived and developed individually
- Compounding the problem: systems, TTP, missions changing continuously, new coalition partners, stovepiped intelligence dissemination

Notes:
• Some Svc systems deployed on other Svc platforms
• As is depicts presence in at least one CINC theater

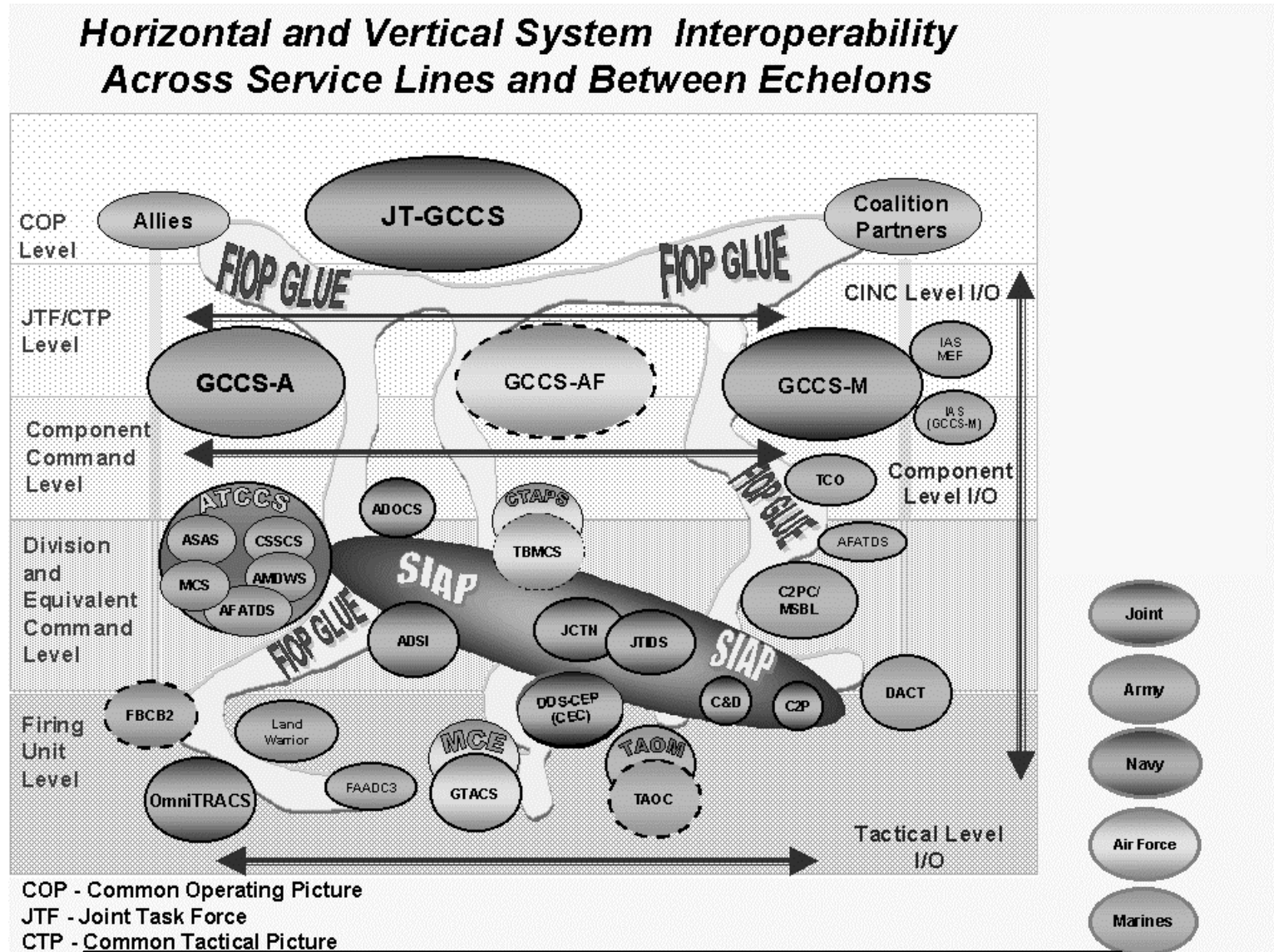
Inadequate interoperability = fratricide, leakers, lack of effectiveness



Family of Interoperable Operational Pictures (FIOP) (The Solution)



Initial focus on JTF level & below

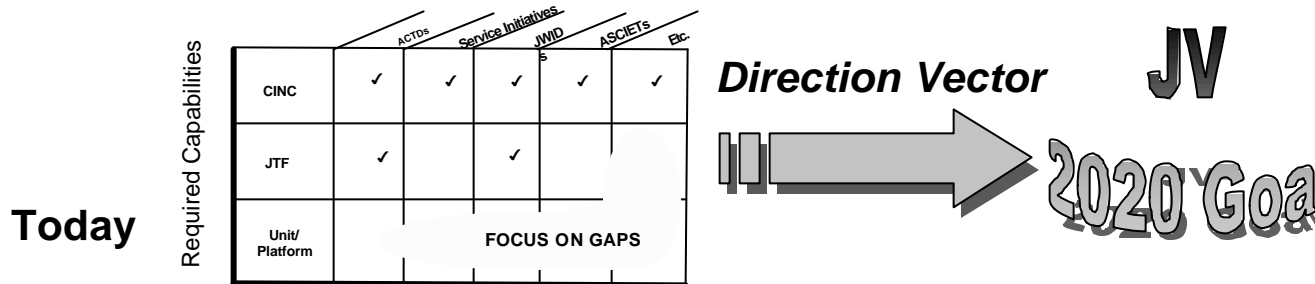


Federating the Battlespace Pictures



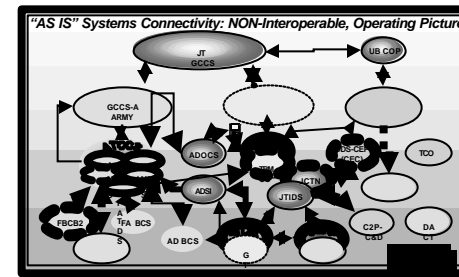
The “Glue”: How to Implement the FIOP Concept

- ① Focus Department initiatives that are working pieces of the problem/coordination of FIOP capabilities portfolio



**Enterprise
Integration**

- ② Data strategy / data fusion, and information security



Systems Requirements

- ③ Optimum (objective) interoperability of Service systems
 - assess whether there are any interoperability changes that can immediately fill a gap in required capabilities
 - **JROC Mandate**

Exploits communications to the last tactical mile, including Internet/Niprnet/Siprnet/JWICS connectivity of GIG, JTRS, etc, etc

Systems Engineering



Combat Identification (CID)



- A top concern for US/Joint/Coalition Interoperability
 - *Many lives have been lost due to failures in CID*
- Leading an effort with C3I and Joint Staff to focus on the ground combat element of CID - where we are weakest
- “Joint CID Ground Study” proposal to lay out Army, Navy, Marine Corps, Air Force systems over time, in a synchronized fashion, to deliver a capability to our troops

OSD/AT&L Champion to Implement this initiative



Time Critical Targeting / Time Critical Strike:



- Chosen by the Service Acquisition Executive flag reps as “a vehicle to develop and refine the processes for managing the acquisition and development in a SoS context”
- Key questions to answer: What are we buying, from a joint perspective, for a capability in 2005, 2010, etc, for TCT/TCS ?
What *should* it be?
 - **We cannot even articulate this today**
- BUT, our Senior decision makers are making costly decisions each day in the absence of this info, and will continue to
 - **Need a first order answer now! then we can iterate**



Conclusion

- **Interoperability *is* Effective Joint and Combined Operations**
- **Need to build mission area system of systems capabilities**
- **FIOP is Key to Implementing Decision Superiority**
- **Efforts must evolve in Cooperation with Allies and Coalition Partners**
- **Must Harness and Adapt Commercial IT Technology and Processes**



Acronym Listing



Acronyms Alphabetical

ACDS	Advanced Combat Direction System (formerly NTDS)
ADBCS	Air Def. Battlefield Functional Area Control Systems
ADOCS	Automated Deep Operations Coordination System
ADSI	Air Defense Systems Integrator
AFATDS	Army Field Artillery Tactical Data System
AMDWS	Air and Missile Defense Work Station
ASAS	All Source Analysis System
ATCCS	Army Tactical Command and Control System
CSSCS	Combat Service Support Control System
C2P-C&D	Command and Control Processor AN/UYQ-62(V)1
C2PC/MSBL	Command Control PC
C4I	Command, Control, Communication, Computer & Intelligence
CTAPS	Contingency Theater Automated Planning System
DACT	Data Automated Communications Terminal
DAES	Defense Acquisition Executive Summary
DDS-CEP	Data Distr. System-Cooperative Engagement Processor
DSB	Defense Science Board
FAADC21	Forward Area Air Defense Command, Control, Intel System
FABCS	Field Artillery Battery Control System
FBCBS	Force 21 Battle Command, Brigade and Below
FIOP	Family of Interoperable Operating Pictures
GCCS	Global Command and Control System
GCCS-A	Global Command and Control System - Army
GCCS-AF	Global Command and Control System - Air Force
GCCS-M	Global Command and Control System - Maritime
GIG	Global Information Grid
GTACS	Ground Theater Air Control System
IER	Information Exchange Requirements
JOA	Joint Operational Architecture
JSA	Joint System Architecture
JTA	Joint Technical Architecture
JTIDS	Joint Tactical Information Distribution System
JV2020	Joint Vision 2020
KPP	Key Performance Parameters
MCE	Modular Control Equipment
MCS	Maneuver Control System
SIAP	Single Integrated Air Picture
SIGP	Single Integrated Ground Picture
TAOC	Tactical Air Operations Center
TAOM	Tactical Air Operations Modules
TCO	Tactical Combat Operations

Acronyms By Affiliation

Air Force

GCCS-AF	Global Command and Control System - AF
CTAPS	Contingency Theater Automated Planning System
GTACS	Ground Theater Air Control System
MCE	Modular Control Equipment
TBMCS	Theater Battle Management Control System

Army

GCCS-A	Global Command and Control System - Army
CSSCS	Combat Service Support Control System
ADBCS	Air Def. Battlefield Functional Area Control Systems
AFATDS	Army Field Artillery Tactical Data Systems
AMDWS	Air and Missile Defense Work Station
ASAS	All Source Analysis System
ATCCS	Army Tactical Command and Control System
FAADC21	Forward Area Air Defense Command, Control, Intel System
FABCS	Field Artillery Battery Control System
FBCB@MCS	Force 21 Battle Command, Brigade and Below Maneuver Control System

Joint

GCCS	Global Command and Control System
ADOCS	Automated Deep Operations Coordination System
ADSI	Air Defense System Integrator
JTIDS	Joint Tactical Information Distribution System
JCTN	Joint Composite Tactical Network

Marine Corps

GCCS-M	Global Command and Control System - Maritime
DACT	Data Automated Communications Terminal
TAOC	Tactical Air Operations Center
TAOM	Tactical Air Operations Module

Navy

GCCS-M	Global Command and Control System - Maritime
C2P-C&D	Command & Control Processor- Command & Decision
C2PC/MSBL	Command Control PC
DDS-CEP	Data Distr. System-Cooperative Engagement Processor
SIAP	Single Integrated Air Picture
TCO	Tactical Combat Operations